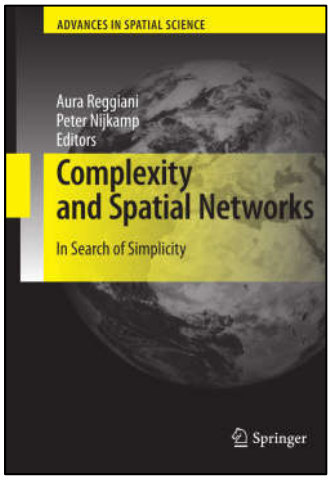

Complexity and Spatial Networks In Search of Simplicity, Edited by Aura Reggiani and Peter Nijkamp, published by Springer

The book ***Complexity and Spatial Networks In Search of Simplicity*** (p.283) belong to the series Advances in Spatial Science and is a collective volume edited by Prof. **Aura Reggiani** and Prof. **Peter Nijkamp**, both distinguished scholars in spatial economics.

Complex systems analysis has become a fascinating topic in modern research on non-linear dynamics, not only in the physical sciences but also in the life sciences and the social sciences. Geographical space is one of the playgrounds for complex dynamics, as is witnessed by population movements, transport flows, retail developments, urban expansion, lowland flooding, and so forth. Within this context, from a methodological point of view, complex systems necessitate a unifying framework of analysis embracing the meaning and use of interdisciplinary concepts such as self-organization, criticality, redundancy, resilience, and sustainability. At the same time, the universality and austerity of the lows of network centrality and connectivity, such as the entropy and power laws, raise the demand for better exploration.

The book is composed of contributions from reputable scholars from all over the world and brings together a series of original and innovative contributions in the area of complex spatial dynamics and networks. This book suggests the outgrowth of a workshop organized by IPL (Institute Para Limes), the new Institute for frontier research on complex phenomena of a trans-disciplinary nature, based in the Netherlands (for details, see www.paralimes.org). The book is organized into three (A, B, C) Parts, plus an introduction and epilogue (Part D). The first part, entitled *Complexity, Evolution, and Simplicity in Space*, includes 5 papers dealing with complexity in urban modeling, city size distribution, complexity in transport costs and urban shapes, the linkage between algorithmic complexity and spatial simplicity, and polyplexity in social and policy sciences. The second part, entitled *Evolutionary Networks in a Socio-Economic Context*, includes 6 papers dealing with complexity, evolution, and learning, proximity in socioeconomic network applications. The third part, entitled *Empirical Aspects of Network Complexity in the Space-Economy*, includes 6 papers dealing with complexity, simplicity, and adaptivity in transportation systems, urban network dynamics, spatial autocorrelation and interaction, and commuting networks.

The 19 chapters of this book share a common goal in highlighting the linkages between *spatial economic analysis* and *network analysis* and addressing directions towards synthesizing these two scientific and research fields into a single disciplinary framework. This is mainly done through empirical applications and simulations building on transportation and social networks of spatial interaction background. The book ***Complexity and Spatial Networks In Search of Simplicity*** succeeds to serve this goal, as it is eloquently summarized in the Epilogue (Chapter 19) of this book.

The structure of the book sufficiently provides to the reader a clear and complete picture of the fundamentals describing the linkage between complexity and spatial networks. This successful approach, in conjunction with the ongoing demand of integrating

more aspects of network science in the educational process, highlights the necessity to convert this book into a textbook. Such a transition should build on the concepts of *(a) complexity*, as conceived by network science and statistical mechanics; (b) *spatiality* and *spatial interaction*, as conceived by spatial econometrics and analysis; (c) *network model*, as conceived by graph theory; (d) *evolution* and *dynamics*, as conceived by economics, econophysics, and statistical mechanics; and *(e) simplicity*, as conceived by optimization theory and operational research, as weel as on the transportation networks' background, for the presentation of various examples and exercises (that excellently can be drafted from the available 19 chapters). In the scenario of becoming a textbook, the book ***Complexity and Spatial Networks In Search of Simplicity*** can serve various academic needs in spatial economics, geography, transportation, graph theory, and physics education.

Overall, in its current form, the book promotes the interdisciplinary way of thinking in spatial and transportation economics and is a must-to-have book for regional scientists, geographers, economists, engineers, and other scholars activating in spatial research.

Book Review by Dimitrios TSIOTAS, Ph.D., RSI J